

In re Appln. of Gloaguen
Application No. 10/004,984

REMARKS

Pending Claims:

Claims 1, 3-7, 10-13 and 15-23 are pending in this application, claim 8 having been cancelled herein without prejudice.

Claim 1 has been amended to incorporate the limitations of claim 8. Accordingly, claim 1 now requires the vent element to be a porosity calibrated Teflon material structure. Claim 21 has been amended to define a structure in which the larger diameter sealing collar comprises a radially extending hole, and the material of that hole is attached to the separately formed vent means. The amendments to claim 21 are all fairly based on the specification as filed. The material of the bellows 10 entering the vent 20 is described on page 6, line 12. The radial extent of the hole is described on page 6, line 19. In addition, the radial hole can be readily seen in the drawings, particularly Figures 5, and 6. It is respectfully submitted that the claims as amended are patentable over the prior art, and reconsideration is requested.

Rejections Under 35 U.S.C. § 103:

The last Office Action, rejected claims 1, 3-8, 10, 11, 13, 15, and 19 as obvious over Colletti (US 3927567). The Office Action regarded the use of Teflon as "a design choice" and also regarded the element 18 in Colletti as "made of a porosity calibrated material".

The Applicant respectfully submits that the reference to "element 18" in Colletti as a porosity calibrated material is not understandable. The element 18 is described as a "plug" that closes the end of the tube (13). It is not described as being porous. Accordingly, the rejection is without proper basis and should be withdrawn.

If the Examiner intended to refer to the filter pellets 29 of Colletti, the rejection is likewise not soundly based and should be withdrawn. By way of background, the filter pellets 29 are first mentioned on column 4 line 30 of Colletti and are described as being "composed of discreet particles 37 of a metal powder and have pores 38 therebetween which are intercommunicated so that air can flow through the pellet" (column 4, lines 30 to 33). The pellets are described as being composed of bronze powder compacted and sintered "to a density which will accommodate free passag of air but which will trap non-gaseous material such as oil or grease and dirt" (column 4, lines 35 to 37). Later, the pellet 29 is described as

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trapping lubricant from the chamber 36 "in the inner end of the pellet 29" (column 4, lines 55 and 56). As air enters the chamber, this air will flush or purge the grease trapped in the inner end of the pellet (column 4, lines 59 and 60) the outer end of the pellet will "trap any air laden component such as dirt" (column 4, lines 61 and 62). The trapped dirt will then "be flushed or purged from the outer end of the pellet 29 on the next decrease in volume of the sea of chamber" (column 4, lines 62 to 64).

It is apparent from Colletti that the filter pellets 28 work by holding oil and grease on the inner surface of the pellet, holding dirt on the outer surface of the pellet and by trapping oil grease and dirt within the pellet. It is also clear from Figure 6 of Colletti and from the characteristics of sintered materials, that the size of the pores in the filter pellets 29 are not of calibrated size. Accurate calibration is not possible with sintered materials.

It has been found that such contaminants, particularly small dust particles, will inevitably enter the porous structure of the pellet and get caught in the porous structure as illustrated in Figure 6. To prevent these particles entering, the pores of the pellet would have to be so small as to allow insufficient aspiration. The presence of the particles will inevitably decrease the performance of the pellet 29 to the point where the pellet 29 will become blocked and aspiration will not be possible.

The present invention as defined by amended claim 1, which incorporates the limitations of now cancelled claim 8, overcomes this difficulty by using a porosity calibrated Teflon material. Teflon has a very low sliding friction and consequently materials such as water or dust that enters the porosity calibrated Teflon structure will be removed by the subsequent passage of air through the structure. The calibration of the porosity allows the pore size to be chosen so as to provide optimized performance.

It is submitted that, contrary to the Examiner's assertion, the use of a Teflon material is not merely a matter of design choice. The teaching of Colletti is the use of a material that will "trap non-gaseous material". There are a very large number of other metals that could be sintered to produce a pellet of the kind required by Colletti and that would function in the same manner as the Colletti pellet 29. As described above, however, the porosity calibrated Teflon material of the present invention does not function in the same way as Colletti pellet 29. By using a low sliding friction porosity calibrated material, a significant advantage is

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obtained of ensuring removal from the interior of the vent of small particles such as dust that would tend to plug the pellet of Colletti.

The Office Action also rejected claims 1, 3, 5-8, 10-12, and 16-18 over Great Britain Patent No. 1,384,012 (GB '012). The Office Action does not indicate where in GB '012 however, that the use of the porosity calibrated material is disclosed or taught. In GB '012 a "annular filter 19" is provided (page 1, line 82). The dust contained in air passing through is retained by the filter 19 (page 2, lines 28 and 29). There is no description in GB '012 of dust and dirt or oil and grease being removed from the filter 19 by the passage of air through the filter. It is submitted, therefore, that GB '012 does not show a structure that bears any relation to the structure of new claim 1.

The drawings likewise indicate that GB '012 discloses a structure that is significantly different from that of the present invention. In GB '012, the bellows are provided with "a supporting wall 13 of a cover 14 having externally a retaining wall 15 which is substantially co-axial with the bellows" (page 1, lines 71 to 73). This cover forms a "annular chamber 18" into which an annular filter 19 serving as a dust guard is inserted" (page 1, lines 79 to 82).

The Office Action suggests, on the basis only of claim 5 of GB '012, that the cover 14 is formed separately from the bellows and subsequently connected to the bellow. This interpretation of claim 5 is not supported by either the drawings or by the remaining description, however. First, on page 1, lines 67 to 70, the specification describes the cover as being "formed on the small end 3 of the bellows 1 remote from the working cylinder". This is consistent with the drawings where the shading shows clearly the bellows 1 and the cover 14 being molded in one piece.

In fact, the feature of the cover being "attachable to the bellows", as stated in claim 5, is a reference to the fact that "the retaining wall 15 has eight clips 16 which engage over the first fold of the bellows 1" (page 1, lines 75 to 77). The reference to "attachable" in claim 5 is thus a reference to this attachment and not to separate formation of the cover 14. This is confirmed by claim 6 of GB '012, which is dependant on claim 5 and refers to the clips.

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Rejections Under 35 U.S.C. § 102(b):


The Office Action also rejected claims 21-23 as anticipated by GB '012. Independent claim 21 has been amended to more clearly define and describe the inventive structure and more clearly distinguish it from the GB '012 reference. More specially, amended claim 21 defines a structure in which the larger diameter sealing collar is provided with a radially extending hole and the material of that hole attached to the separately formed vent means. GB '012 shows no such radially extending hole and no material forming such hole and extending into a separately formed vent means.

It is submitted that this claim is both novel and non-obvious over GB '012. GB '012 does not describe or suggest the use of a radial hole formed in the largest collar of a bellows with the material forming in the hole extending into a separately formed vent.

Conclusion:

The invention as described in the amended claims is not disclosed or taught by the cited references. The application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney. In any event the Examiner is requested to enter this amendment to place the application in condition for allowance or claims in better condition for appeal.

Respectfully submitted,


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